

**REMARKS**

Claims 56-91 are pending. By this Amendment, claims 56-91 are added, and claims 1-55 are cancelled, as was done in parent application no. 10/060,340. Claims 56-91 are fully supported by the original specification as detailed in the following claim charts. Thus, no new matter is added by this Amendment.

New claims 56-91 respectively correspond to claims 1-8, 10, 11, 14-19, 23-25, 27, 34-37, 39-41, 43-49, 56 and 57 of U.S. Patent No. 6,195,201. See 37 C.F.R. §1.607(c).

Applicant requests that an interference be declared between this application and U.S. Patent No. 6,195,201.

In accordance with 37 C.F.R. §1.607(a)(5), Applicant applies the terms of the copied claims to Applicant's disclosure below. The following charts are just some examples of how the claims can be applied to applicant's disclosure, i.e., the charts are not meant to be all-inclusive.

<u>Claim 56</u>	<u>Description in Applicant's Application</u>
An illumination system for forming a shaped illumination field comprising:	Page 1, lines 4-6
source of electromagnetic radiation;	Item 54; Figs. 4, 9, 13, 21, 25, 26, 28, 31, 32; page 9, lines 6-12, page 29, lines 2-8
a first faceted mirror receiving the electromagnetic radiation from said source; and	Item 360a; Figs. 22-25; page 24, line 21 - page 26, line 19
a second faceted mirror receiving the electromagnetic radiation reflected from said first faceted mirror, said second faceted mirror having facets with a plurality of different tilts wherein electromagnetic radiation is redistributed providing a substantially uniform irradiance in the shaped illumination field,	Item 360b; Figs. 22-25; page 24, line 21 - page 26, line 19, page 27, lines 9-20, page 44, lines 4-5
whereby a predetermined illumination field is formed.	Page 3, lines 24-25, page 21, lines 12-16, page 23, lines 9-16

<u>Claim 57</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 56 further comprising:	
a reflector positioned to collect and reflect the electromagnetic radiation from said source and direct the electromagnetic radiation towards said first faceted mirror.	Items 418, 422; Figs. 25, 26, 28, 31, 32; page 29, lines 10-17

<u>Claim 58</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 56 further comprising:	
a relay positioned to receive the electromagnetic radiation from the second faceted mirror.	Item 66; Figs. 4, 9, 12, 13, 20, 21, 25, 26, 28, 32; page 4, lines 1-8, page 10, lines 5-11, page 11, line 30 - page 12, line 2, page 13, lines 12-14, page 16, line 10 - page 17, line 10, page 18, line 24 - page 20, line 3, page 20, line 12 - page 21, line 2

<u>Claim 59</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 56 wherein:  said first faceted mirror forms a plurality of images of said source on said second faceted mirror and said second faceted mirror redirects the electromagnetic radiation to form an illumination field having a predetermined shape with a desired radiant intensity.	Page 25, lines 7-18, page 27, lines 7-20
<u>Claim 60</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 56 wherein:  said first and second faceted mirrors comprise a plurality of concave mirror surfaces.	Figs. 17, 19, 20; page 19, lines 4-9, page 20, lines 5-10, page 26, lines 21-24
<u>Claim 61</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 60 wherein:  each of the plurality of concave mirrors of said first faceted mirror has an arcuate shape.	Fig. 22; page 3, lines 26-28, page 24, lines 21-23, page 26, lines 21-24
<u>Claim 62</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 60 wherein:  each of the plurality of concave mirrors of said second faceted mirror has a rectangular shape.	Fig. 23; page 4, lines 12-14, page 24, line 31 - page 25, line 5
<u>Claim 63</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 60 wherein:  a desired irradiance distribution is provided.	Page 27, lines 7-20

<u>Claim 64</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 56 wherein:	
the electromagnetic radiation has a wavelength in the extreme ultraviolet.	Page 9, lines 6-12, page 29, lines 2-8

<u>Claim 65</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 56 wherein:	
said first faceted mirror comprises at least a three by ten mirror array; and	Fig. 22; page 24, lines 21-29
said second faceted mirror comprises at least a six by six mirror array.	Fig. 23; page 25, lines 1-5

<u>Claim 66</u>	<u>Description in Applicant's Application</u>
An illumination system comprising:	Page 1, lines 4-6
a source of electromagnetic radiation;	Item 54; Figs. 4, 9, 13, 21, 25, 26, 28, 31, 32; page 9, lines 6-12, page 29, lines 2-8
a first faceted mirror receiving the electromagnetic radiation from said source; and	Item 360a; Figs. 22-25
a second faceted mirror receiving the electromagnetic radiation reflected from said first faceted mirror,	Item 360b; Figs. 22-25
said first and second faceted mirrors comprise a plurality of concave mirror surfaces, and	Figs. 17, 19, 20; page 19, lines 4-9, page 20, lines 5-10, page 26, lines 21-24
said plurality of concave mirrors have a tilt arrangement, whereby energy is distributed as desired,	Fig. 24; page 24, line 21 - page 26, line 19, page 27, lines 9-20, page 44, lines 4-5
whereby a predetermined illumination field is formed.	Page 27, lines 7-20

<u>Claim 67</u>	<u>Description in Applicant's Application</u>
An illumination system comprising:	Page 1, lines 4-6
a source of extreme ultraviolet electromagnetic radiation;	Item 54; Figs. 4, 9, 13, 21, 25, 26, 28, 31, 32; page 9, lines 6-12, page 29, lines 10-15
first reflective fly's eye means, positioned to receive electromagnetic radiation from said source, for forming multiple images of said source; and	Items 220a, 360a; Figs. 13-32; page 18, line 30 - page 19, line 20, page 24, lines 21-29, page 25, line 7 - page 26, line 19
second reflective fly's eye means, positioned to receive electromagnetic radiation reflected and imaged by said first reflective fly's eye means, for overlapping and redistributing the multiple images of the source received from said first reflective fly's eye means and forming an illumination field having a predetermined radiant intensity and predetermined shape.	Items 220b, 220c, 360b; Figs. 13-32; page 19, line 21 - page 20, line 10, page 21, lines 12-13, page 24, line 31 - page 25, line 12, page 23, lines 9-16

<u>Claim 68</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 67 further comprising:	
reflector means, positioned to receive the electromagnetic radiation from said source, for collecting the electromagnetic radiation from said source and reflecting the electromagnetic radiation towards said first reflective fly's eye means.	Items 418, 422; Figs. 25, 26, 28, 31, 32; page 29, lines 10-17

<u>Claim 69</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 67 further comprising:	
a relay positioned to receive electromagnetic radiation reflected from said second fly's eye means.	Item 66; Figs. 4, 9, 12, 13, 20, 21, 25, 26, 28, 32; page 4, lines 1-8, page 10, lines 5-11, page 11, line 30 - page 12, line 2, page 13, lines 12-14, page 16, line 10 - page 17, line 10, page 18, line 24 - page 20, line 3, page 20, line 12 - page 21, line 2

<u>Claim 70</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 67 wherein:	
said first reflective fly's eye means comprises a first mirror array comprising a plurality of concave mirrors; and	Items 220a, 360a
said second reflective fly's eye means comprises a second mirror array comprising a plurality of concave mirrors.	Items 220b, 220c, 360b; Figs. 17, 19, 20; page 19, lines 4-9, page 20, lines 5-10

<u>Claim 71</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 70 wherein:	
a desired irradiance distribution is provided.	Page 21, lines 12-16, page 23, lines 9-16

<u>Claim 72</u>	<u>Description in Applicant's Application</u>
An illumination system comprising:	Page 1, lines 4-6
a source of extreme ultraviolet electromagnetic radiation;	Item 54; Figs. 4, 9, 13, 21, 25, 26, 28, 31, 32; page 9, lines 6-12, page 29, lines 2-8
first reflective fly's eye means, positioned to receive electromagnetic radiation from said source, for forming multiple images of said source, said first reflective fly's eye means comprises a first mirror array comprising a plurality of concave mirrors, each of the plurality of concave mirrors of said first mirror array are tilted; and	Item 360a; Figs. 17, 19, 20, 22-25; page 19, lines 4-9, page 20, lines 5-10, page 24, line 21 - page 26, line 19, page 27, lines 9-20, page 44, lines 4-15

<u>Claim 72</u>	<u>Description in Applicant's Application</u>
second reflective fly's eye means, positioned to receive electromagnetic radiation reflected and imaged by said first reflective fly's eye means, for overlapping the multiple images of the source received from said first reflective fly's eye means and forming an illumination field having a predetermined radiant intensity and predetermined shape, said second reflective fly's eye means comprises a second mirror array comprising a plurality of concave mirrors, each of the plurality of concave mirrors of said second mirror array are tilted to overlap images at the illumination field.	Item 360b; Figs. 17, 19, 20, 22-25; page 19, lines 4-9, page 20, lines 5-10, page 21, lines 12-13, page 23, lines 9-16, page 24, line 21 - page 26, line 19, page 27, lines 9-20

<u>Claim 73</u>	<u>Description in Applicant's Application</u>
An illumination system comprising:	Page 1, lines 4-6
a source of extreme ultraviolet electromagnetic radiation;	Item 54; Figs. 4, 9, 13, 21, 25, 26, 28, 31, 32; page 9, lines 6-12, page 29, lines 2-8
a reflector reflecting the electromagnetic radiation;	Item 418; Figs. 25, 26, 28, 31, 32; page 29, lines 10-15
a first base, said first base having a first shaped surface;	Items 220a, 360a are formed in a base that can be planar; page 18, lines 27-30
a first reflective fly's eye having a first plurality of arcuate facets formed on the first shaped surface and positioned to receive and reflect the electromagnetic radiation;	Items 220a, 360a; Figs. 13-32; page 3, lines 26-28, page 18, line 30 - page 19, line 20, page 24, lines 21-23, page 26, lines 21-24
a second base, said second base having a second shaped surface; and	Items 220b, 220c, 360b are formed in a base that can be planar or curved; page 19, lines 21-23, page 44, lines 4-14
a second reflective fly's eye having a second plurality of facets formed on the second shaped surface and positioned to receive and reflect the electromagnetic radiation,	Items 220b, 220c, 360b; Figs. 13-32; page 19, line 21 - page 20, line 10, page 24, line 31 - page 25, line 5

<u>Claim 73</u>	<u>Description in Applicant's Application</u>
the first plurality of facets positioned so as to image said source at the second plurality of facets,	Page 20, lines 15-18, page 22, lines 29-31, page 23, lines 9-16, page 25, lines 7-12
the second plurality of facets positioned to form an arcuate illumination field having a desired irradiance and radiant intensity.	Page 3, lines 24-25, page 21, lines 12-16, page 23, lines 9-16

<u>Claim 74</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 73 wherein:	
the first plurality of arcuate facets are randomly tilted, so as to distribute energy on the second plurality of facets.	Item 360a; Figs. 22-24; page 24, line 21 - page 26, line 19, page 27, lines 9-20

<u>Claim 75</u>	<u>Description in Applicant's Application</u>
An illumination system as in claim 73 further comprising:	
a relay positioned to receive electromagnetic radiation reflected from said second reflective fly's eye.	Item 66; Figs. 4, 9, 12, 13, 20, 21, 25, 26, 28, 32; page 4, lines 1-8, page 10, lines 5-11, page 11, line 30 - page 12, line 2, page 13, lines 12-14, page 16, line 10 - page 17, line 10, page 18, line 24 - page 20, line 3, page 20, line 12 - page 21, line 2

<u>Claim 76</u>	<u>Description in Applicant's Application</u>
A condenser for an illumination system used to project the image of a reticle onto a photosensitive substrate comprising:	Page 1, lines 4-6
first reflective fly's eye means, positioned to receive electromagnetic radiation from a source, for forming multiple images of the source; and	Items 220a, 360a; Figs. 13-32; page 18, line 30 - page 19, line 20, page 24, lines 21-29, page 25, line 7 - page 26, line 19

<u>Claim 76</u>	<u>Description in Applicant's Application</u>
second reflective fly's eye means, positioned to receive electromagnetic radiation reflected and imaged by said first reflective fly's eye means, for overlapping and redistributing the multiple images formed by said first reflective fly's eye means and forming an illumination field having a predetermined radiant intensity and shape.	Items 220b, 220c, 360b; Figs. 13-32; page 19, line 21 - page 20, line 10, page 21, lines 12-13, page 24, line 31 - page 25, line 12, page 23, lines 9-16

<u>Claim 77</u>	<u>Description in Applicant's Application</u>
A condenser as in claim 76 further comprising:  reflector means, positioned to receive electromagnetic radiation from the source, for collecting electromagnetic radiation from the source and reflecting electromagnetic radiation to said first reflective fly's eye means.	Items 418, 422; Figs. 25, 26, 28, 31, 32; page 29, lines 10-17

<u>Claim 78</u>	<u>Description in Applicant's Application</u>
A condenser as in claim 76 further comprising:  a relay positioned to receive electromagnetic radiation reflected from said second reflective fly's eye means.	Item 66; Figs. 4, 9, 12, 13, 20, 21, 25, 26, 28, 32; page 4, lines 1-8, page 10, lines 5-11, page 11, line 30 - page 12, line 2, page 13, lines 12-14, page 16, line 10 - page 17, line 10, page 18, line 24 - page 20, line 3, page 20, line 12 - page 21, line 2

<u>Claim 79</u>	<u>Description in Applicant's Application</u>
A condenser as in claim 76 wherein:  said first and second reflective fly's eye means each comprises a mirror array.	220a, 220b, 220c, 360a, 360b each is an array of mirrors; Figs. 14, 15, 22-24; page 18, line 24 - page 19, line 29

<u>Claim 80</u>	<u>Description in Applicant's Application</u>
A condenser for an illumination system used to project the image of a reticle onto a photosensitive substrate comprising:	Page 1, lines 4-6
first reflective fly's eye means, positioned to receive electromagnetic radiation from a source, for forming multiple images of the source; and	Item 360a; Figs. 22, 24; page 24, lines 21-23, page 25, lines 7-18, page 30, lines 1-3
second reflective fly's eye means, positioned to receive electromagnetic radiation reflected and imaged by said first reflective fly's eye means, for overlapping the multiple images formed by said first reflective fly's eye means and forming an illumination field having a predetermined radiant intensity and shape,	Item 360b; Figs. 23, 24; page 21, lines 12-13, page 23, lines 9-16, page 24, line 31 - page 25, line 5, page 30, lines 3-15
said first and second reflective fly's eye means each comprises a mirror array,	Figs. 22-24; page 24, lines 21-23, page 24, line 31 - page 25, line 5
each mirror in the mirror array of the first reflective fly's eye means is randomly tilted within a predetermined range; and	Page 24, line 21 - page 26, line 19, page 27, lines 9-20
the tilt of the mirrors in the mirror array of the second reflective fly's eye means are used to compensate and form the illumination field.	Page 24, line 21 - page 26, line 19, page 27, lines 9-20

<u>Claim 81</u>	<u>Description in Applicant's Application</u>
A condenser for an illumination system used to project the image of a reticle onto a photosensitive substrate comprising:	Page 1, lines 4-6
a first reflective fly's eye comprising a first plurality of mirrors forming an array, each of the first plurality of mirrors having a predetermined displacement and angular tilt;	Item 360a; Figs. 22-25; page 24, line 21 - page 26, line 19, page 27, lines 9-20, page 28, lines 6-8

<u>Claim 81</u>	<u>Description in Applicant's Application</u>
a second reflective fly's eye comprising a second plurality of mirrors forming an array, each of the second plurality of mirrors having a predetermined displacement and angular tilt whereby electromagnetic radiation reflected from the first plurality of mirrors is received by the second plurality of mirrors,	Item 360b; Figs. 22-25; page 24, line 21 - page 26, line 19; page 27, lines 9-20
whereby the predetermined displacement and angular tilt of the first and second plurality of mirrors results in forming an illumination field of predetermined shape with a desired radiant intensity.	Page 3, lines 24-25, page 21, lines 12-16, page 23, lines 9-16, page 27, lines 7-15, page 27, line 28 - page 28, line 8, page 32, lines 16-21, page 38, lines 2-4, page 42, lines 3-15

<u>Claim 82</u>	<u>Description in Applicant's Application</u>
A condenser as in claim 81 further comprising:  a relay positioned to receive electromagnetic radiation reflected from said second reflective fly's eye.	Item 66; Figs. 4, 9, 12, 13, 20, 21, 25, 26, 28, 32; page 4, lines 1-8, page 10, lines 5-11, page 11, line 30 - page 12, line 2, page 13, lines 12-14, page 16, line 10 - page 17, line 10, page 18, line 24 - page 20, line 3, page 20, line 12 - page 21, line 2

<u>Claim 83</u>	<u>Description in Applicant's Application</u>
A condenser for an illumination system used to project the image of a reticle onto a photosensitive substrate comprising:	Page 1, lines 4-6
a first faceted mirror positioned to receive electromagnetic radiation from a source and form multiple images of the source; and	Items 220a, 360a; Figs. 13-32; page 18, line 30 - page 19, line 20, page 20, lines 15-18, page 22, lines 29-31, page 24, lines 21-23, page 25, lines 7-12
a second faceted mirror positioned to receive the multiple images of the source formed by said first faceted mirror and to overlap and redistribute the multiple images formed by said first faceted mirror,	Items 220b, 220c, 360b; Figs. 13-32; page 19, line 21 - page 20, line 10, page 21, lines 12-13, page 23, lines 9-16, page 24, line 31 - page 25, line 5

<u>Claim 83</u>	<u>Description in Applicant's Application</u>
whereby an illumination field having a predetermined radiant intensity and shape is formed.	Page 3, lines 24-25, page 21, lines 12-16, page 23, lines 9-16

<u>Claim 84</u>	<u>Description in Applicant's Application</u>
A condenser for an illumination system as in claim 83 wherein:  said first faceted mirror comprises arcuate facets.	Items 220a, 360a; Figs. 14, 22, 24; page 18, line 30 - page 19, line 9, page 24, lines 21-23

<u>Claim 85</u>	<u>Description in Applicant's Application</u>
A condenser for an illumination system as in claim 83 wherein:  said first and second faceted mirrors each have a number of facets,	Figs. 14, 15, 22-24; page 18, line 24 - page 19, line 29, page 24, line 15 - page 25, line 5
whereby the number of facets are varied to adjust uniformity at the illumination field.	The different embodiments have different numbers of facets; page 27, lines 9-20, page 27, line 28 - page 28, line 8, page 32, lines 16-21, page 38, lines 2-4

<u>Claim 86</u>	<u>Description in Applicant's Application</u>
A condenser for an illumination system as in claim 83 wherein:  an illumination region received by said first faceted mirror is adjusted in size.	Item 460; Fig. 26; page 31, line 27 - page 32, line 2, page 33, lines 4-19

<u>Claim 87</u>	<u>Description in Applicant's Application</u>
A condenser for an illumination system as in claim 83 wherein:	
said first and second faceted mirrors each have a number of facets,	Figs. 14, 15, 22-24; page 18, line 24 - page 19, line 29, page 24, line 15 - page 25, line 5
whereby the number of facets are varied to modify radiant intensity at the illumination field.	The different embodiments have different numbers of facets; items 460a, 460b; Fig. 26; page 33, lines 4-19; the number of facets contributing to form the image changes when the radiation beam 428 (428') changes

<u>Claim 88</u>	<u>Description in Applicant's Application</u>
A condenser for an illumination system as in claim 87 wherein:	
correlation between the number of facets of the first and second faceted mirrors is varied,	Fig. 26; Page 25, line 20 - page 26, line 13
whereby radiant intensity may be modified.	Page 26, lines 15-19

<u>Claim 89</u>	<u>Description in Applicant's Application</u>
A condenser for an illumination system as in claim 87 wherein:	
the size, shape, and location of the number of facets of the second faceted mirror are varied.	Fig. 26; Page 24, lines 4-7, page 27, lines 7-13, page 32, lines 16-21

<u>Claim 90</u>	<u>Description in Applicant's Application</u>
A condenser for an illumination system as in claim 83 wherein:	
undesirable obscurations are eliminated by correlating the number of facets of the first faceted mirror receiving predetermined energy to the second faceted mirror,	Page 26, lines 7-20

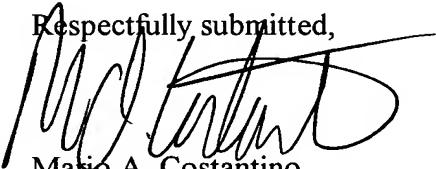
<u>Claim 90</u>	<u>Description in Applicant's Application</u>
whereby insignificant energy in the undesirable obscuration is eliminated.	Page 26, lines 15-19

<u>Claim 91</u>	<u>Description in Applicant's Application</u>
A condenser for an illumination system used to project the image of a reticle onto a photosensitive substrate comprising:	Page 1, lines 4-6
a first faceted mirror positioned to receive electromagnetic radiation from a source and form multiple images of the source; and	Item 360a; Figs. 22-25; page 24, line 21 - page 26, line 19
a second faceted mirror positioned to receive the multiple images of the source formed by said first faceted mirror and to overlap the multiple images formed by said first faceted mirror,	Item 360b; Figs. 22-25; page 21, lines 12-13, page 23, lines 9-16, page 24, line 21 - page 26, line 19, page 27, lines 9-20
said first and second faceted mirrors each have a number of facets, whereby the number of facets are varied to modify radiant intensity at an illumination field,	Figs. 22-24; page 24, line 21 - page 26, line 19; items 460a, 460b; Fig. 26; page 33, lines 4-19; the number of facets contributing to form the image changes when the radiation beam 428 (428') changes
a position of the multiple images of the source formed on the second faceted mirror are varied by tilting each of the number of facets of the first faceted mirror,	Fig. 24; page 24, line 21 - page 26, line 19, page 27, lines 9-20
whereby the illumination field having a predetermined radiant intensity and shape is formed.	Page 27, lines 7-20

In addition, Applicant proposes that the Count be claim 83 of this application and/or claim 43 of U.S. Patent No. 6,195,201.

Applicant submits that all claims of U.S. Patent No. 6,195,201 and all claims of this application should be designated as corresponding to the Count.

Examination, allowance and declaration of an interference in due course are earnestly solicited. The Examiner is invited to contact Applicant's undersigned attorney if there are any questions.

Respectfully submitted,  
  
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MAC/ccs

Attachment:  
Information Disclosure Statement

Date: October 27, 2003

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